Journal of Economics and Sustainable Development
ISSN 2222-1700 (Paper) ISSN 2222-2855 (Online)
Vol.9, No.18, 2018
www.iiste.org

Relationship Financial Development and Economic Growth: An Empirical Test for MENA Countries

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Abstract
This paper examines the link between economic growth and the financial system. We discuss the effect of the financial development on growth in the MENA region, while trying to know how manifests this effect and under what conditions it would be positive. And this through i) building a financial development index ii) Estimate the relationship between financial development and economic growth based on a panel of MENA countries over the period 1990-2014. The results show that the positive contribution of financial development remains dependent on the stability of the financial system. The results also confirm theoretical suggestions that instability in financial development is detrimental to the positive effect of financial development on growth. However, it should be noted that the financial development effect depends to a large extent on the structural and cyclical specificities of each country. Moreover, the results do not make it possible to determine the structure of the financial system that is best suited to the economic growth of the countries studied, a structure that the national authorities of these countries should certainly promote for a faster convergence towards potential growth. Indeed, the reforms of the financial system must follow a comprehensive and cautious approach that requires a thorough study to clear the threshold from which financial development can boost economic growth.
Keywords: Financial development, Economic growth, Panel Data, Middle East and North Africa Countries

1. Introduction

The miracles of growth of Asian dragons during the 1990s show that the development of the financial system and the diversification of tools and means of financing investments were the main engine of growth driven by the promotion of exports. But this engine failed later and even was the cause of a crisis affecting the entire economic system. The Asian crisis of 1997 has passed much anchor to explain the main causes of the fall and the triggering of a crisis that was unpredictable. This literature has focused on the link between economic growth and the financial system.

This literature has become more interested in the determinants of the classification of financial systems and the growth bonuses that the economy can acquire as a result of financial development. These classes include those seeking to identify the comparative advantages of a bank-based or market-based system. Others do not attach importance to this typology - bank-based or market-based - it all depends on the efficiency and business environment. The legal system is the main factor explaining the impact of the financial system on economic growth. The effectiveness of the latter is an approach to explain the disparities in terms of financial development in the context of liberalization. A complementary approach to the previous one attributes a crucial role to the institutional environment, institutions being understood in a broader sense than the legal environment alone.

The results of the various studies show the instability of the finance-growth relationship. The meaning and importance of this relationship differ according to the level of development of the financial sector, depending on the level of income of the country and the period studied. Such a finding leads us to re-examine the nature of this relationship, depending on the case and the category of countries in question and the period of the study.

In this framework is the present article in which we will discuss this issue of the financial development effect on growth in the MENA region, while trying to know how manifests this effect and under what conditions it would be positive. And this through i) building a financial development index ii) Estimate the relationship between financial development and economic growth based on a panel of MENA countries.

This article will be organized as follows, Section 1 will be devoted to a synthetic review of the literature relating to the relationship between financial development and economic growth. Section 2 in which we will present a methodology for constructing a financial development indicator for the countries in the sample (MENA countries) that will be used in an empirical model. In section 3 we will present the model used, the results and the interpretation of the empirical study.

2. Literature Review

Since the mid-1970s, several developing countries have partially or totally liberalized their financial systems by lightening or removing control over capital and foreign exchange. However, the effects of financial liberalization were not similar to those of trade liberalization. The experiences differ according to the country and even the periods during which the liberalization was triggered. In the beginning Asian countries like South Korea, Taiwan, have been successful. For other cases (Latin America, the Philippines and Turkey), this financial liberalization

has failed. Even for Asian countries, liberalization has led to excessive increases in real interest rates, speculative capital inflows, and finally serious balance of payments and banking crises. Such facts lead us to ask several questions about the nature of the Finance-growth relationship in other words between financial development and growth.

Explanations of financial development transmission mechanisms that involve a multitude of means and financial intermediation are highlighted for the financing of investment and the economy. But the development of these means of financing is accompanied by an increase in the share of money in the money supply that follows the growth of the latter and amplifies the risk of failure of the banking system. In the absence of a surveillance system and by the contagion effect, the failure of a bank unable to ensure the liquidity of deposits, is likely to be transmitted to the entire banking and financial system. Economic history has taught us a lot about this subject. In addition financial development can be manifested by the intensification of competition in the banking system which does not have only beneficial effects. It tends to affect the relations between banks-customers which will pose disruptions of the banking system and thus decreases the incentive of the bank to invest (Boot (2000)). On the other hand, the intensification of competition will lead to an increase in credit interest rates.

This can be favorable if it tends to reduce the margin of the banks and thus promotes more mobilization of savings and investment. However, it can have negative effects if the reduction in margins encourages banks to become speculators seeking to increase their yield by acquiring riskier assets (Hellmann, Murdock and Stiglitz (2000)).

Much of the literature has examined the effect of financial development on economic growth using a range of econometric techniques, such as cross-country, time series, panel data.

The empirical literature of finance-growth relationship can be divided into three categories, cross-sectional, panel and time series studies. Most of the studies on cross-sectional and panel data have accounted the positive relationship between financial development and economic growth. Goldsmith (1969) for the first time using an annual data-set of 35 countries over the period 1860 to 1963 documented a positive correlation between financial development and GDP per capita.

De Gregorio and Guidotti (1995) using cross-country data found that financial development, proxied by bank credit to the private sector to GDP, is positively correlated to growth. However, they have found a negative relationship in a panel data for Latin America. They have argued that financial liberalization in a poor regulatory environment is the reason for this negative relationship.

King and Levine (1993) using a data-set of 80 countries over the period of 1960–1989 found that financial development is strongly associated with real per capita GDP growth, with the rate of physical capital accumulation, and with the improvements in efficiency with which economies employ physical capital.

A similar result is also accounted by Rajan and Zingales (1996), who concluded that financial markets provide important services for growth. Similarly, Khan and Senhadji (2000) provided empirical evidence on the relationship between financial development and economic growth using a cross-section of 159 countries (comprising both industrial and developing countries) for the period of 1960 to 1999. The growth equation has been estimated using both pure cross-section sample (by averaging along the time dimension) and five-year average panels (obtained by taking a five-year average of the original data). They concluded that the effect of financial development on growth is positive, the size of the effect varies with different indicators of financial development, estimation method, data frequency and the functional form of relationship.

Christopoulos and Tsionas (2004) investigated long-run relationship between financial depth and economic growth, taking the data from 10 developing countries. They analyzed data using panel unit root and panel cointegration techniques. They have also taken threshold effects into the account. They concluded that there is a long-run relationship between financial development and economic growth in 10 developing countries. They found that there exists a unidirectional long-run causality between financial development and economic growth and that runs from finance to growth. However, they do not take the problem of cross-sectional dependency into the account.

Similarly, Bojanic (2012), Uddin, Sjö and Shahbaz (2013), Jedidia, Boujelbène and Helali (2014), and Samargandi, Fidrmuc and Ghosh (2014) using time-series techniques for data analysis have also found a positive impact of financial development on economic growth.

Though there are some arguments on the relationship between financial development and economic growth, the majority of the recent studies have not ignored the importance of financial sector development on the growth of an economy.

A study on the finance-growth relationship by Zhang J., Wang L. and Wang S. (2012) found that financial development is positively related to economic growth in China. Herwartz and Walle (2014), using annual data for 73 economies spanning the period 1975–2011, concluded that impact of finance on economic development is generally stronger in high-income economies than in low-income economies. In line with this, a more recent study by Pradhan, Arvin, Bahmani, Hall and Norman (2017) used four different proxies of financial

development (banking sector development, bond market development, stock market development, and insurance sector development) to examine the finance-growth relationships in ASEAN region for the period of 1991–2011. Their results show that banking sector development, stock market development, bond market development, insurance market development, and per capita economic growth shared a cointegrating relationship in long-run. However, in the case of causality, their results are sensitive to the use of financial development proxy. They accounted a unidirectional causality from banking sector development to economic growth and a bi-directional causality between stock market development and economic growth, and insurance sector development and economic growth.

Menyah, Nazlioglu and Wolde-Rufael (2014) using a data-set of 21 African countries do not find strong support for finance-led- growth evidence. Hassan, Sanchez and Yu (2011) provided empirical results on the finance-growth relationship in Low and Middle-income countries. Their results show a positive relationship between financial development and economic growth in developing countries. The results show a two-way causality relationship between finance and growth for most of the regions and one-way causality from growth to finance for the two poorest regions.

There is another pool of studies that have either accounted negative or no relationship between financial development and economic growth. Singh (1997), Narayan P. K. and Narayan S. (2013) in 65 developing countries, Ayadi, Arbak, Naceur and De Groen (2015) in northern and southern Mediterranean countries, Ductor and Grechyna (2015) in 101 developed and developing countries, Grassa and Gazdar (2014) in five GCC countries, and Mhadhbi (2014) in the case of developed countries have found weak relationship between financial development and economic growth.

Law and Singh (2014), using the data of 87 developed and developing countries, concluded that more finance is not necessarily good for economic growth. A similar study by Samargandi, Fidrmuc, and Ghosh (2015), using threshold effect, analyzed finance-growth nexus in a panel of 52 middle income countries over the period 1980–2008. They found an inverted U-shaped relationship between finance and growth in the long run. In line with this, Arcand, Berkes and Panizza (2015) and Rousseau and Wachtel (2011) found vanishing effect of financial development on economic growth. According to Arcand, Berkes and Panizza (2015), finance starts having a negative effect on output growth when credit to the private sector reaches a threshold.

Deidda and Fattouh (2002) using threshold regressions model found that financial development has a more significant effect on economic growth in high-income countries in comparison with low-income countries.

A more recent study by Demetriades and Rousseau (2016) on the non-monotonic relationship between financial development and economic growth concluded that financial depth is no longer a significant determinant of long-run growth. They further argued that finance growth-nexus is influenced by bank regulation and supervision.

To this end, it is important to note that higher level of development of financial sector may not always be beneficial for economic growth. However, one common issue with these papers on the non-monotonic relationship between financial development and economic growth is that they are conducted on highly heterogeneous panels (including higher, lower, middle or low-income countries).

Arcand, Berkes and Panizza (2015) found that there is a threshold once credit to the private sector reaches 80–100% of GDP.

Goldmith (1969) devoted a study on growth and financial development, he introduced the idea of using the size of financial intermediaries (his specific choice is the value of intermediate assets / GDP) as a measure of the relative intensity of financial relations within a country and at a given date. Using averages for 35 countries and for a 100-year period, he finds strong interactions on the existence of a positive relationship between growth and financial development. Since then, the empirical literature has only addressed this issue in the early 1990s with the work of King and Levine (1993), Levine (1997), Rajan and Zingales (1996), Levine, Loayza and Beck (2000), Beck, Demirguc-Kunt and Levine (2000). King R. and Levine R. (1993) who linked the expansion of the banking sector and its development to economic growth while using the cross-section method for a sample of 80 countries.

King, R., Levine, R., Barro, R. and Sala-I-Martin X. published several papers in the 1990s which later formed an empirical basis for further studies later.

Other studies have addressed the question of causality: Rousseau and Wachtel (2011) have presented evidence concerning the causal link that exists between the intermediate activity and economic performance based on time series studies for industrialized countries. Other investigations (Jung (1986), Demetriades and Hussein (1996)) use gross measures of financial activity (such as the ratio of the money stock / GDP) and report causality results especially for developing countries.

Overall, empirical evidence has shown that there is a positive long-term relationship between financial development indicators and economic growth. In general, all these documents suggest that a well-developed financial market promotes growth, and thus confirms the idea of "more financing, more growth". The preponderance of evidence suggesting the crucial importance of financial system development for growth in

recent years has shifted the focus of the literature on examining the determinants or sources of financial development rather than on the link between financial development and growth.

The crisis of 2008 led to a revision of previous suggestions. The crisis was an illustration of the fact that dysfunctional financial systems can directly and indirectly negatively affect the allocation of resources, discourage savings and increase the volume of speculation, leading to underinvestment. Indeed, once again after the crisis in Southeast Asia, speculation has caused a sharp drop in the activity of the real sector. As a result, the financial turmoil highlights the need for economists and policymakers to address the issue of optimal level of financial system development for sustainable economic growth.

Financial development promotes growth, but is it true, regardless of the size and growth of the financial sector? In other words, is a financial system a drag on the rest of the economy?

Recently, researchers at the Bank for International Settlements (BIS) and the International Monetary Fund (IMF) have suggested that the effect of financial development on growth is not always positive, after a certain level it becomes a drag to growth. This implies that the relationship between finance and growth is nonlinear, or more specifically an inverted U-shape, where there is a turning point in the effect of financial development.

The explanation of this phenomenon lies in the fact that the positive effect of the financial sector generally accompanied by attacks and speculative booms, which can play against growth if the size of the financial sector dominates and the real sector is in saturation state. Arcand, Berkes and Panizza (2015) point out that the finance-growth relationship is negative for high-income countries, where finances start to have a negative effect when credit to the private sector reaches 100% of GDP. They show that their results are compatible with the "leakage effect" of financial development and that they are not motivated by production volatility, banking crises, weak institutional quality or differences in regulation and supervision banking. The two recent studies of the non-linear or non-mono-tonic finance-growth relationship are also consistent with previous empirical studies that show a non-linear relationship.

Rioja and Valev (2004) believe that financial development only has a positive effect on economic growth when it reaches a certain level or threshold; below this threshold, the effect is at best uncertain. They argue that the level of financial development - high, intermediate and low - play an important role in the direction of the finance-growth relationship. In countries with intermediate levels of financial development, this is a significant and positive effect on growth. In countries with a high level of financial development, the effect is positive but weaker. However, in countries with low levels of financial development, the effect is insignificant to foster economic growth. Shen and Lee (2006) also show a similar non-linear, inverted-U relationship between financial development and economic growth, where a higher level of financial development tends to slow down economic growth.

In addition, existing evidence also shows that this relationship between finance and growth varies by level of income.

For example, Rioja and Valev (2004) estimate that there is no significant relationship between financial development and growth in low-income countries, while the relationship is positive and significant in middle-income countries, but weakly significant in high-income countries. Nevertheless, De Gregorio and Guidotti (1995) and Huang and Lin (2009) conclude that the positive effect of financial development on economic growth is much more significant in low- and middle-income countries than in high-income countries.

These results, together with those of a non-linear relationship between finance and growth, lead us to re-examine the nature of this relationship, depending on the case and the category of countries in question and the period of study.

3. Methodology

3.1 Construction of the synthetic Financial Development Index

In general, the empirical literature that analyzes the effect of financial development on several macroeconomic variables such as economic growth tells us that financial variables can detect fluctuations in economic activity through the expectations of agents on financial markets. Depending on the type of variable considered, different possible channels of transmission between the financial sphere and the real sphere were mentioned. Indeed, these channels are apprehended by the relationship between financial variables and economic growth. In this respect, several variables reflecting financial development were used, either in linear or non-linear models. However, the list of financial indicators, which is often very diverse, generally consists of indicators specific to certain countries or groups of countries, since it is not possible to establish a precise standard variable that indicates the level of financial development of a country given. Indeed, the authors use a wide range of indicators, which are often incomplete or unsuited to the theoretical arguments sought.

In this section we will try to build a synthetic index to assess the level of financial development based on the variables commonly used to assess different sides of financial development. To this end, the problem here is to synthesize a quantity of information from different variables, so the technique of factor analysis more precisely, the PCA (Principal Component Analysis) can be considered as the most used to answer this problem.

Indeed, the variables detected and used by empirical models relating to the subject, generally represent the development effect of the contribution of the banking system and the financial market to the financing of investment and economic growth.

Among these variables we note:

- Bank credit / bank deposits (%): Private credit granted by the deposit banks reported to the bank deposits.
- Deposits of banks in% of GDP.
- Private sector credit reported by GDP.
- Deposits of the financial system as a percentage of GDP (%).
- Market capitalization in relation to GDP (%).
- Value traded on the stock market as a percentage of GDP.

These variables are observed for a sample of MENA countries (Saudi Arabia, Bahrain, Iran, Jordan, Kuwait, Lebanon, Morocco, Oman, Tunisia, Turkey, Emirate, Egypt) over the period 1990-2014.

As already mentioned, we will use the PCA technique, which from an empirical point of view corresponds to a purely statistical approach to structuring the data. It consists of summarizing a larger number of initial variables by a reduced number of composite variables or factors. From a theoretical point of view, the PCA corresponds to the psychometric approach of measuring unobservable concepts.

As a result, we will build an index that synthesizes information from the different variables. We have chosen to schematize financial development.

For the construction of the index and the application of PCA the following steps were followed:

1) because data on the sample of MENA countries is observed in time and space and to construct a synthetic index we need to have one observation per individual. We opted for the calculation of the average for each country over the period observed.

2) launch the PCA to which we have imposed a single component,

The results show that the variables are factorializable

Table 1 : KMO Index and Bartlett Test

Precision measurement of Kaiser-Meyer-Olkin sampling.		,571
Bartlett sphericity test	Khi-two approximated	102,127
	fd	10
	Definition of Bartlett	,000

Table 2: Total variance explained

	Initial clean values			Extraction Sum of the factors selected		
Component	Total	% of variance	% cumulated	Total	% of variance	% cumulated
1	3,279	65,581	65,581	3,279	65,581	65,581
2	,918	18,356	83,937			
3	,680	13,603	97,539			
4	,123	2,459	99,998			
5	,00008	,002	100,000			

Extraction Method: Principal Component Analysis.

The KMO test is acceptable, the explained variance is of the order of 65.6% of the information.

3) Step three is to identify the weights of the elementary variables in the component.

Table 3: Matrix of coefficients

Elementary variables retained by the PCA	Weights
Bank loan / bank deposits (%)	,188
Deposits of banks as% of GDP	,247
Deposits of the financial system as a percentage of GDP	,247
Credit granted to the private sector	,205
Value exchanged on stock market% GDP	,113

We eliminated the market capitalization variable because its representativeness quality is poor and without this variable the explained variance is more important.

4) Step 4 is to calculate each country's scores for each year assuming that the index structure remains fixed over the entire period. To obtain a score that varies between 0 and 1 for each variable and for the financial development index, the observations were standardized according to the minimum and maximum levels.

Score variable = observationit - min / max-min

The variable score is the score between 0 and 1 assigned to country i at time t
observationit: is country level i at time t for each variable used
Min and Max is the maximum and minimum of the sample for each variable.
The FDit: Financial Development Index is the weighted average of the variables selected in Table 3. The index scores will be used when estimating the model.

The results showed a greater diversity in the level of financial development of MENA countries.

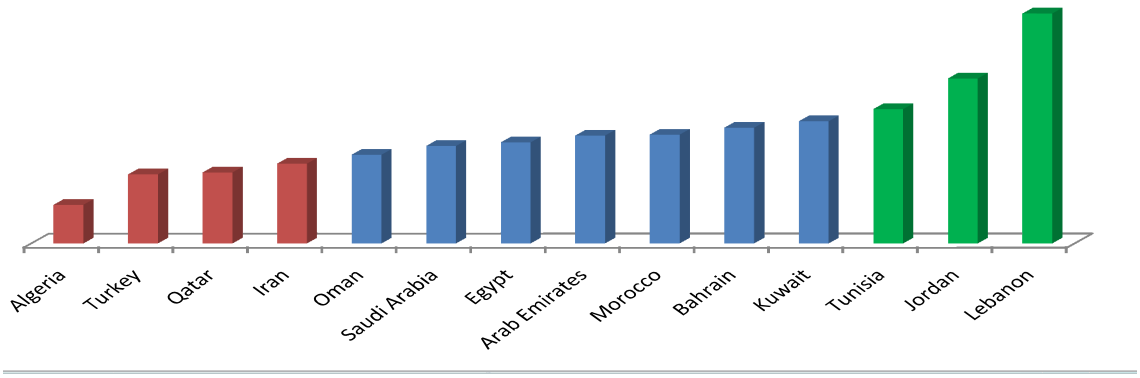

Figure 1. Financial Development (Average of the period 1990-2014)

Financial systems in the MENA region are dominated by the banking sector. As the results show, countries with better banking systems are better ranked. In fact, MENA countries are well prepared for the regulation and supervision of the financial system. But they need to do more to improve their institutional environments and promote the development of the non-bank financial system.

According to the composite index calculated, the countries in the sample can be classified into three classes: the first quartile groups the relatively least developed countries, the second and third quartile contains the intermediate countries, and the fourth quartile contains the countries with 'a relatively more developed system compared to the countries in the sample.

3.2 Model Specification

On the basis of the theoretical and empirical suggestions of the treating works the subject of explanation of the sources of economic growth and which lead to a very broad conclusion: economic growth is a whole, in fact it does not depend solely on purely economic phenomena it is influenced either directly or indirectly by socio-political factors. Indeed, among these factors we used several variables representing both the direct and indirect effects on economic growth.

The economic growth model is a dynamic process, so using the dynamic panel method is more appropriate than a static threshold specification such as Hansen (1999). Threshold techniques Hansen (2000) and Caner and Hansen (2004) are able to deal with the dynamic issue, but both techniques are based on cross-sectional analysis. It is more useful to use panel data because it provides more information and reduces multi-collinearity, as well as ensuring a certain heterogeneity of the whole country.

The empirical model is based on King and Levine (1993), Levine and Zervos (1998) and Cecchetti and Kharroubi (2012) who propose the following linear growth equation to examine the links between finance and growth:

$$GYit = \alpha\ FDit + \beta\ Xit + \varepsilon it$$

GYit is the growth rate of GDP per capita,
FDit is the level of financial development of the country,
Xit is a vector of controls (initial income per inhabitant, investment-gross domestic product (GDP) ratio, population growth rate and human capital),
εit is an error term,
i = 1, ..., N represents the country and **t = 1, ..., T** represents the index of time.
All variables are transformed into logarithms.

The explanations for growth differentials emanate from the convergence theory that fits into the framework of exogenous growth theories have given rise to several factors that determine the level of growth. These factors appear in all formulations of the economic growth equations as control variables.

Rebelo (1984), Solow (1982) and other growth theorists suggest that investment (savings) is the main driver

of growth. Barro (1990) and Barro and Sala i Martin (1992) have also demonstrated the fundamental role of public investment as a factor of economic growth. So according to these theoretical suggestions, investment and gross fixed capital formation must be included in the estimation of a growth equation. In addition, final consumption is one of the internal drivers of growth and, according to multiplier theory, is a key internal factor for boosting economic growth.

Population growth that reflects the demographic dynamics of the country and reflects the size of the market.

For the level of human capital, measurement problems that arise, there is quite a debate about the choice of a variable that reflects this factor. For our case we chose the number of years in secondary education, this measure has given better results in other empirical work.

We have considered the effect of economic openness through the growth rate of exports and FDI flows. Thus we have retained the rate of inflation as a control variable that reflects to a large extent macroeconomic stability.

Table 4. Definitions and sources of variables

Country	MENA countries: Saudi Arabia, Bahrain, Kuwait, Oman, Tunisia, Iran, Jordan, Lebanon, Egypt, Morocco, Algeria Qatar, Tunisia, Turkey, UAE, Egypt, Saudi Arabia
period observed	observed data over the period 1990-2014
Gpop	Population growth (% annual)
Ggdp	GDP per capita growth (% annual)
Cons	Final consumption expenditure, (% du GDP)
Seduc	Secondary education, duration (years)
Savings	Gross Domestic Savings (% of GDP)
gExport	Exports of goods and services (% annual growth)
GFCF	Gross fixed capital formation (% of GDP)
Infl	Inflation, consumer price (% annual)
FDI	Foreign direct investment, net inflows (% of GDP)
Crise	Dummy variable crisis which refers to years of financial crisis
FD	composite financial development index

Data sources: World Bank

The purpose of using these variables is: i) to identify channels of transmission of financial development effects on growth; ii) improve the quality of the estimates and increase the explanatory power of the model; iii) have several variables to obtain the best econometric modeling and a more effective sensitivity analysis.

4. Estimation and results

The estimates will be made in dynamic panel and according to the following approach: We will estimate the model for the global sample then for the sub-samples or classes that we have identified according to the composite index (class 1: countries with significant financial development, class 2: intermediate financial development countries and class 3: developing countries weak financial development).

Firstly, we must choose the appropriate model (fixed effects or random effects). Then the comparison of the results of the estimation of the equation with and without the variable FD, for the case of the global sample and the sub-samples mentioned. To choose the appropriate model for the global sample we performed the hausman test.

Table 5. Hausman Test

Correlated Random Effects - Hausman Test				
Equation: Untitled				
Test cross-section random effects				
Test Summary	Chi-Sq. Statistic	Chi-Sq.	d.f.	Prob.
Cross-section random	20.626930		7	0.0044

The results show a value of probability (P-value) less than 5% so the decision is to reject the hypothesis H_0 the random effects model is the appropriate one. So we accept the alternative hypothesis of the estimation of a fixed-effect model.

Table 6. Results of Estimation

Dependent Variable: GGDP		
Method: Panel Least Squares		
Sample: 1990 2014		
Periods included: 25		
Cross-sections included: 12		
Total panel (unbalanced) observations: 250		
Variable	Coefficient	Coefficient
C	2.075931	4.667309
	(0.758820)	(1.621714)
GPOP	-1.276281	-1.293790
	(-6.825874)	(-7.001405)
GFCF	0.191539	0.218801
	(3.009758)	(3.434180)
CONS	-0.034643	-0.045424
	(-1.150258)	(-1.512612)
INFL	-0.048710	-0.063843
	(-2.718529)	(-3.428880)
FDI	0.078631	0.109309
	(1.319180)	(1.820966)
GEXPORT	0.158105	0.157230
	(5.393715)	(5.430562)
FD		-9.909267
		(-2.614568)
Effects Specification		
Cross-section fixed (dummy variables)		
CROSSID		Effect
Saudi Arabia	0.214802	-0.017310
Bahrain	1.357007	1.421602
Iran	-1.066692	-1.630455
Jordan	1.449483	2.916104
Kuwait	1.751196	2.510812
Lebanon	0.547395	4.351354
Morocco	-1.268426	-1.288839
Oman	-1.174883	-1.674390
Tunisia	-0.379373	0.261712
Turkey	2.010037	1.920790
Algeria	-1.710670	-3.383023
Egypt	-1.313685	-1.891817
R-squared	0.322582	0.342052
Adjusted R-squared	0.272943	0.290784
F-statistic	3.163217	6.671763
Prob (F-statistic)	0.000000	0.000000
( ) is the t-Statistic		

The estimation of the GDP growth rate according to the control variables and the financial development variable gave the following results:

- The inflation rate that reflects macroeconomic stability negatively affects GDP growth, the estimated coefficient is negative and statistically significant at a level of 1%, a result that goes with macroeconomic theory, high inflation inhibits the growth.
- The investment represented by the share of GFCF in GDP is significant with a positive sign, affirming the lessons of growth theories that suggest that investment is, among other things, the main engine of economic growth.
- Efforts by MENA countries to promote exports are clear in the positive relationship between GDP growth and the growth rate of exports. Similarly, the effect of FDI is statistically significant in the majority of cases with a positive sign.
- However for human capital the coefficient is not statistically significant such a result may be due to the quality of the variable used. Indeed, in the MENA countries the rate of years of schooling in secondary education remains as low as it has not been in favor of economic growth.

For the variable of interest reflecting the financial development, we will compare the results with and without the use of the composite index in the equation.

For the overall sample, the results show that the effect of financial development on growth is negative in the MENA region. However, the analysis of the results for country-specific effects changes behavior (sign and value) between the presence and absence situation of the FD variable in the equation. Indeed, for the case of countries

with significant financial development (according to our composite index) the specific effect has become more important so an improvement effect related to the FD variable. For middle-class countries, the specific effect has improved for the least developed in financial development. Countries in Class 3 show results that confirm the negative relationship to growth.

From these results we can deduce that the effect of financial development on economic growth is closely related to the specificities of each country and can be combined with specific factors to positively or negatively affect economic growth.

So far the question remains posed for the case of the countries studied. Since for the case of Lebanon, for example, the estimated specific effect without introducing the variable FD is of the order of 0.54, by introducing the variable FD into the equation the effect has become of the order of 4.5; in the case of Algeria this value has become increasingly negative. In addition, the calculation of the correlation coefficient between the specific effect and the composite financial development index is 0.77, which proves the strong interaction between financial development and the specific effect of each country.

In order to look for other elements of lightening we have estimated the growth equation for subsamples according to the three classes.

The results confirm the finding from the results of the equation estimated on the basis of the overall sample. The coefficient relating to the variable FD is not stable, it is negative, and is significant for the sample of class 1, which is not significant for the other two classes. The same applies to the signs of the coefficients relating to the control variables. For the specific effect the results show a very remarkable diversity.

Table 7. Results for three classes

Class 1			Class 2			Class 3		
Dependent Variable: GGDP			Dependent Variable: GGDP			Dependent Variable: GGDP_H		
Method: Panel Least Squares			Method: Panel Least Squares			Method: Panel Least Squares		
Sample: 1990 -2014			Sample: 1990 -2014			Sample: 1990 -2014		
Periods included: 25			Periods included: 25			Periods included: 25		
Cross-sections included: 3			Cross-sections included: 6			Cross-sections included: 2		
Total panel (unbalanced) observations: 53			Total panel (unbalanced) observations: 127			Total panel (unbalanced) observations: 45		
	Coefficient			Coefficien			Coefficien	
Variable	Coefficient		Coefficient	t		Coefficient	t	
C	-7.896961	-22.99713	7.287935	4.270124		3.912121	3.189212	
t-Statistic	-0.621412	-1.549411	2.030367	1.357930		1.193779	0.963426	
GPOP	-0.053161	-0.490352	-1.475549	-1.383110		0.446017	-0.279257	
t-Statistic	-0.098338	-0.842938	-6.661982	-6.389856		0.304679	-0.203299	
GFCF	0.169031	0.237306	0.250011	0.187189		0.018895	0.027931	
t-Statistic	0.985126	1.233735	2.625526	2.115929		0.210362	0.305409	
CONS	0.236544	0.227379	-0.089194	-0.065049		-0.039617	-0.027497	
t-Statistic	2.097061	1.596480	-2.198727	-1.698173		-0.908125	-0.629212	
INFL	-0.284217	-0.199713	-0.114414	-0.033808		-0.084654	-0.093711	
t-Statistic	-1.646139	-1.123354	-1.031344	-0.334405		-1.845162	-2.030343	
FDI	0.332098	0.073405	0.065728	0.052693		0.940554	0.809828	
t-Statistic	2.550368	0.580360	0.876690	0.700805		1.317881	1.127889	
Gexport	0.065546	0.105530	0.111896	0.103096		0.288667	0.294429	
t-Statistic	1.114923	1.633292	2.756285	2.539696		4.361024	4.401272	
FD	-43.81480		-10.46101			-7.622081		
t-Statistic	-4.111550		-1.638880			-1.397112		
Effects Specification			Effects Specification			Effects Specification		
Cross-section fixed (dummy variables)			Cross-section fixed (dummy variables)			Cross-section fixed (dummy variables)		
CROSSID	Effect		CROSSID	Effect		CROSSID	Effect	
Lebanon	7.803400	-2.288748	Saudi Arabia	0.354571	0.481274	Iran	1.464168	1.012751
Tunisia	1.293664	2.806040	Bahrain	2.344349	1.979265	Algeria	-1.530722	-1.058785
Jordan	-2.490461	-2.327599	Kuwait	3.418720	2.196433			
			Morocco	-0.547692	-0.549317			
			Oman	-1.419298	-0.949328			
			Egypt	-3.256721	-2.590349			
R-squared	0.615373		R-squared	0.374029	0.358181	R-squared	0.595038	0.572195
Adjusted R-squared	0.534869		Adjusted R-squared	0.308137	0.296789	Adjusted R-squared	0.505046	0.491258
F-statistic	7.644061		F-statistic	5.676417	3.208210	F-statistic	6.612143	7.069701
Prob (F-statistic)	0.000001		Prob (F-statistic)	0.000000	0.000000			

5. Conclusion

For control variables representing the factors having effects on growth, the results make it possible to identify the insignificant influence of the internal consumption. This can be explained to a large extent by the structure that favors imported products and inflation that has a negative effect. However, for the variable investment growth rate, the results show that, for the countries in the sample, GDP growth is strongly driven by capital formation.

The export promotion strategies adopted during the 1980s and 1990s were, despite the strong competition in the market, the main destination of the exports, very beneficial in terms of growth as shown by the coefficient associated with the rate. of export growth which is positive and statistically significant.

The results also show that the positive contribution of financial development remains dependent on the stability of the financial system. The results also confirm theoretical suggestions that instability in financial development is detrimental to the positive effect of financial development on growth. However, it should be noted that the financial development effect depends to a large extent on the structural and cyclical specificities of each country. Such a finding argues in favor of the technical changes used to study the effects of financial development on economic growth, which must incorporate aspects of the specificities and shifts in the relationship between financial development and economic growth.

Moreover, the results do not make it possible to determine the structure of the financial system that is best suited to the economic growth of the countries studied, a structure that the national authorities of these countries should certainly promote for a faster convergence towards potential growth.

Finally, it is up to us to verify the compatibility of the level of financial development with the economic and institutional structure of the countries in question. Indeed, the reforms of the financial system must follow a comprehensive and cautious approach that requires a thorough study to clear the threshold from which financial development can boost economic growth.

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